

Papahānaumokuākea Marine National Monument Permit Application Cover Sheet

This Permit Application Cover Sheet is intended to provide summary information and status to the public on permit applications for activities proposed to be conducted in the Papahānaumokuākea Marine National Monument. While a permit application has been received, it has not been fully reviewed nor approved by the Monument Management Board to date. The Monument permit process also ensures that all environmental reviews are conducted prior to the issuance of a Monument permit.

Summary Information

Applicant Name: Monica S. C. Carneiro da Silva

Affiliation: Centro de Biologia Ambiental, Faculdade de Ciencias, Universidade de Lisboa, Portugal

Permit Category: Research

Proposed Activity Dates: 7/2008 - 10/2008 (this is the duration of the breeding season of the species, which is the only time they visit land and are thus accessible on their nests)

Proposed Method of Entry (Vessel/Plane): n/a

Proposed Locations: for Bulwer's Petrels: Tern Island (French Frigate Shoals), Nihoa Island, Laysan Island; for Band-rumped Storm-Petrels: Kauai Island.

Estimated number of individuals (including Applicant) to be covered under this permit:

For logistic reasons this application would rely on refuge managers and their teams or researchers already on the islands to collect the blood samples. Only one person per island is required to carry out the work. This collaboration would have the advantage of reducing human disturbance on the islands.

Estimated number of days in the Monument:

Between 15 and 20 samples would be required from each location. For each island this could easily be carried out during a single day, for a total of four days in the Monument.

Description of proposed activities: (complete these sentences):

a.) The proposed activity would...

The proposed activity would involve taking blood samples from two species of burrow-nesting Procellariiform seabirds, the Bulwer's Petrel and the Band-rumped Storm-Petrel. These blood samples would be used to extract DNA in order to compare with samples already obtained from colonies in the Atlantic to answer questions about whether the populations from the Pacific and Atlantic oceans are different and are isolated.

b.) To accomplish this activity we would

To accomplish this activity we would collect a small sample of blood (50 microlitres) from 15-20 individuals (nestlings if possible, to ensure colony of origin) of each

species from each colony. To take a sample the brachial vein is punctured with a thin needle, and the drop of blood that forms upon puncture is collected with a capillary tube and eluted in an Eppendorf tube with lysis buffer (inert solution which will preserve the DNA sample at room temperature). A little pressure is then applied at the collection spot with a small amount of cotton until the blood stops flowing. The bird is then returned to its nest. on each island. The process of taking the sample takes less than 5 minutes.

c.) This activity would help the Monument by ...

This activity would help the Monument by providing the local authorities in charge of management and conservation with information to define policies that take into account the levels of genetic diversity and uniqueness of each colony, and levels of gene flow for these two species of ground-nesting seabirds. Although populations of the different species are considered stable by BirdLife Conservation, their general small population sizes renders them susceptible to extinction, and their current status is considered either rare or vulnerable. By revealing how genetic variation is partitioned among and within populations and how demographically autonomous they are, the molecular approaches we are proposing to employ will help characterize the genetic diversity that conservation biology seeks to preserve. Specifically, the current taxonomic status of Bulwer's Petrels is unclear. Populations of this species in the Atlantic and Pacific Oceans have been diverging for a long time and may have accumulated significant differences which would warrant them a different species status. Conservation efforts will need to take this information into account in order to decide whether they should be considered different management units. Portugal and Hawaii currently hold some of the most important populations of these species and there should be a concerted effort for the conservation of their populations. Results will be presented in scientific meetings and eventually will be published in international, peer-reviewed, journals. We will also elaborate reports to local management authorities, such as the Parque Natural da Madeira, Portugal, and if appropriate, the Papahānaumokuākea Marine National Monument and Hawaiian Fish and Wildlife Services, USA.

Other information or background:

This proposed research is part of a broader project to study comparative phylogeography of two pairs of Procellariiform seabirds. The first pair includes the Bulwer's Petrel and Band-rumped Storm-Petrel, which are included in the present proposal. The other pair of species include the White-faced Storm-Petrel (*Pelagodroma marina*) and Little Shearwater (*Puffinus assimilis*), which have populations in the NE Atlantic Ocean (Portugal), South Atlantic Ocean (Gough Island, UK) and New Zealand. We have established collaborations with researchers from South Africa and New Zealand and sampling of these two species is currently under way.

Populations of Bulwer's Petrels and Band-rumped Storm-petrels from the NE Atlantic (Portugal and the Cape Verde Islands) have already been collected and we have initiated the development of the molecular markers required to carry out the analysis.

Specifically, we have so far isolated nine markers for Bulwer's Petrels and two for Band-rumped Storm-petrels.

A research grant has been awarded by the Fundacao para a Ciencia e a Tecnologia (the Portuguese equivalent to the National Science Foundation). For more information please see

http://www.fct.mctes.pt/projectos/pub/2006/Painel_Result/default2.asp?idElemConcurso=927